

High Prevalence of Gentamicin Resistance Among Selected *Salmonella* Serotypes in the United States: Associated with Heavy Use of Gentamicin in Poultry?

Marano N, Stamey K, Barrett T, Angulo F, and The Narms: Enteric Bacteria Working Group

Gentamicin is used empirically for the treatment of gram-negative sepsis (which may be caused by *Salmonella*) as well as for other serious infections in humans. Gentamicin is also widely used in food animals in the United States, particularly poultry. Most of the eggs that hatch the nearly 8 billion broilers produced annually are injected with gentamicin. The National Antimicrobial Resistance Monitoring System (NARMS) for Enteric Bacteria was established in 1996 to monitor resistance among *Salmonella* and other enteric bacteria. The 17 participating state health departments forward every tenth human *Salmonella* isolate to CDC for antimicrobial susceptibility testing. Based on the 10 most commonly isolated serotypes in poultry at slaughter in 1998, human serotypes were classified as 'poultry-associated'. In 1996-1998, 144/4094 (3%) of *Salmonella* isolates were gentamicin-resistant. A high proportion of the gentamicin-resistant isolates were invasive; 16 (11%) were isolated from blood. The prevalence of gentamicin resistance among 'poultry-associated' serotypes was 5.4%, compared with 1.8% among the other serotypes ($p < .01$). The prevalence of gentamicin resistance among 'poultry-associated' (human) serotypes ranged from 19% (*S. Heidelberg*) to 4% (*S. Enteritidis*). Comparable results have been reported from poultry at slaughter; in 1997, 18% of *Salmonella* isolates from chickens and 17% of *Salmonella* isolates from turkeys were gentamicin-resistant. In northern Europe, in contrast, gentamicin is not used in poultry, and gentamicin-resistant *Salmonella* in humans and poultry is rare. To prevent adverse human health consequences, interventions are needed, particularly in poultry, to mitigate the high prevalence of gentamicin resistance among poultry-associated *Salmonella* serotypes in the United States.

Suggested citation:

Marano N, Stamey K, Barrett T, Angulo F. High prevalence of gentamicin resistance among selected *Salmonella* serotypes in the US: associated with heavy use of gentamicin in poultry? Infectious Disease Society of America 37th Annual Meeting. Philadelphia, PA, November 1999.